

**WHAT IS CLAIMED IS:**

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1 ~~36B<sup>2</sup>~~ 1. A non-woven web comprising:  
 2 recycled cellulose fiber;  
 3 recycled glass fiber, and  
 4 a sizing agent which provides the mat with decreased liquid penetrability over  
 5 time.

1 2. The apparatus of claim 1, wherein the sizing agent is alkenyl succinic  
 2 anhydride.

1 3. The apparatus of claim 2, wherein the sizing agent has a dry basis add-on rate  
 2 of from about 0.15% to about 0.4%.

1 4. The apparatus of claim 2, wherein the sizing agent has a dry basis add-on rate  
 2 of from about 0.2% to about 0.3%.

1 5. The apparatus of claim 1, wherein the sizing agent provides the mat with  
 2 decreased liquid penetrability four weeks after mat production.

1 6. The apparatus of claim 1, further comprising untreated clarifier sludge.

1 7. The apparatus of claim 6, wherein the sizing agent is alkenyl succinic  
 2 anhydride.

- 1 8. The apparatus of claim 7, wherein the sizing agent has a dry basis add-on rate  
2 of from about 0.15% to about 0.4%.

- Sub  
A
- 1 9. The apparatus of claim 7, wherein the sizing agent has a dry basis add-on rate  
2 of from about 0.2% to about 0.3%.

- 1 10. A non-woven web comprising:  
2 recycled cellulose fiber;  
3 recycled glass fiber, and  
4 alkenyl succinic anhydride as a sizing agent.

- 1 11. The apparatus of claim 10, wherein the alkenyl succinic anhydride has a dry  
2 basis add-on rate of from about 0.15% to about 0.4%.

- Sub  
B
- 1 12. The apparatus of claim 10, wherein the alkenyl succinic anhydride has a dry  
2 basis add-on rate of from about 0.2% to about 0.3%.

- 1 13. The apparatus of claim 10, wherein the alkenyl succinic anhydride provides  
2 the mat with decreased liquid penetrability four weeks after mat production.

- 1 14. The apparatus of claim 10, further comprising untreated clarifier sludge.

- 1 15. The apparatus of claim 14, wherein the sizing agent has a dry basis add-on  
2 rate of from about 0.15% to about 0.4%.

16. The apparatus of claim 14, wherein the sizing agent has a dry basis add-on rate of from about 0.2% to about 0.3%.

17. A method of forming a non-woven web, the method comprising:

- making a mixture of recycled cellulose fiber and recycled glass fiber;
- adding a sizing agent to the mixture;
- forming the mixture into a mat;
- choosing the sizing agent to provides the mat with decreased liquid penetrability over time.

18. The method of claim 17, wherein the sizing agent is alkenyl succinic anhydride.

19. The method of claim 17, further comprising adding the sizing agent at a dry basis add-on rate of from about 0.15% to about 0.4%.

20. The method of claim 17, further comprising adding the sizing agent at a dry basis add-on rate of from about 0.2% to about 0.3%.

21. The method of claim 17, wherein the sizing agent provides the mat with decreased liquid penetrability four weeks after mat production.

22. The method of claim 17, further comprising adding untreated clarifier sludge to the mixture.

1 Sub P3 23. The method of claim 22, wherein the sizing agent is alkenyl succinic  
2 anhydride.

1 24. The method of claim 22, further comprising adding the sizing agent at a dry  
2 basis add-on rate of from about 0.15% to about 0.4%.

1 25. The method of claim 22, further comprising adding the sizing agent at a dry  
2 basis add-on rate of from about 0.2% to about 0.3%.

1 26. A rigid cellular foam board comprising:  
2 a first facer and a second facer;  
3 a rigid cellular foam formed between the first facer and the second facer;  
4 wherein at least one of the first facer and the second facer comprise:  
5 recycled cellulose fiber;  
6 recycled glass fiber, and  
7 a sizing agent which provides the facer with decreased liquid penetrability  
8 over time.

1 27. The apparatus of claim 26, wherein the sizing agent is alkenyl succinic  
2 anhydride.

1 28. The apparatus of claim 26, wherein the sizing agent has a dry basis add-on  
2 rate of from about 0.15% to about 0.4%.

1 29. The apparatus of claim 26, wherein the sizing agent has a dry basis add-on  
2 rate of from about 0.2% to about 0.3%.

- 1 30. The apparatus of claim 26, wherein the sizing agent provides the facer with  
2 decreased liquid penetrability four weeks after facer production.

Sub a3  
1 31. The apparatus of claim 26, wherein the foam is a polyisocyanurate foam.

1 32. The apparatus of claim 26, wherein at least one of the first facer and the  
2 second facer further comprise untreated clarifier sludge.

1 33. The apparatus of claim 32, wherein the sizing agent is alkenyl succinic  
2 anhydride.

1 34. The apparatus of claim 32, wherein the sizing agent has a dry basis add-on  
2 rate of from about 0.15% to about 0.4%.

1 35. The apparatus of claim 32, wherein the sizing agent has a dry basis add-on  
2 rate of from about 0.2% to about 0.3%.